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# County of Los Angeles CHIEF EXECUTIVE OFFICE

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December 8, 2008

To: Supervisor Don Knabe, Chairman  
Supervisor Gloria Molina  
Supervisor Mark Ridley-Thomas  
Supervisor Zev Yaroslavsky  
Supervisor Michael D. Antonovich

From: William T Fujioka  
Chief Executive Officer

## **FIRE ASSESSMENT AND RECOVERY ACTIONS AT OLIVE VIEW - UCLA MEDICAL CENTER**

On November 18, 2008, on motion by Supervisor Antonovich, your Board instructed the Chief Executive Officer (CEO), the Director of Internal Services Department (ISD), the Interim Director of Health Services (DHS) and the Fire Chief to: 1) assess the damage sustained by the child care center, develop plans for its reconstruction, and secure alternative sites for employees at Olive View-UCLA Medical Center (OVMC) to take their children; 2) report an inventory of the 34 plus facilities and their functions that were damaged at OVMC, including business recovery actions that are currently underway to ensure services are not interrupted; 3) report and evaluate any available funding from the State and federal government for disaster relief; 4) develop recommendations that serve to mitigate future fire damage at OVMC; and 5) consult with the Department of Public Works (DPW) to hire an appropriate consultant to participate in the root cause analysis of the emergency generators and the fuel pump systems at OVMC, and report back to the Board in 15 days.

## **CHILD CARE CENTER**

The OVMC Child Care Center (Child Care Center) was totally destroyed by the fire. OVMC has provided temporary space in its conference center and assisted in readying the site to reinstate child care services. The Child Care Center received clearance from the Los Angeles City Fire Department and approval from its licensing agency and reopened on Tuesday, December 2, 2008. The hospital is working with the Child Care Center to plan for a replacement facility on the campus.

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The construction of a permanent replacement facility is dependent upon the identification of appropriate space, as potential hazardous materials abatement issues could impact the placement of any new building. However, deviation from the original site location may reduce the funding assistance levels from the State and federal governments. DHS is working with this Office to develop an initial site plan for campus recovery, and the Child Care Center will be included in that effort.

## **FACILITY DAMAGE ASSESSMENT**

Attachment I provides an initial inventory of the 48 OVMC structures damaged or destroyed in the fire, including a brief description of the damage and recovery efforts. DHS staff is still in the process of compiling documentation of the damaged or destroyed items contained in the structures. DHS has also assigned a staff person from its Capital Projects Division to assist with the documentation and recovery process. In addition to damage to the Center, Human Resources, and Information Systems buildings, the fire also destroyed numerous structures containing financial, laboratory, radiology, and medical records. Patient care services were not impacted by the fire. Staff from the impacted areas (Human Resources and Information Technology), have been moved to other space at the facility.

DPW has surveyed the damaged or destroyed buildings and tagged those that are not safe for occupancy or use. DHS has ordered temporary cargo containers to meet immediate storage needs (costs not eligible for disaster assistance). Permanent storage facilities will be addressed as part of the site planning and recovery efforts.

With regard to erosion control, OVMC worked closely with DPW to assess the campus risk in advance of the recent rains. In conjunction with DPW, OVMC has implemented a number of precautions, including: bringing in a contractor to bulldoze, grade, and clean out debris basins; creating earth berms to direct water flow; using heavy equipment to place K-rails (concrete barriers) in at-risk locations throughout the campus; and placing sandbags around administrative office buildings along Cottage Row to divert water and mud flow.

## **FUNDING SOURCES**

Funding will be available through the federal and State Public Assistance Programs for disaster relief costs resulting from the Sayre Fire. Federal coverage has been approved for debris removal and emergency protective measures, as well as permanent work. Permanent work includes replacement of structures and restoration of structures to pre-disaster conditions. DHS and County departments are completing the requisite work

on an emergency basis. DHS is tracking costs and will complete the necessary documentation to obtain appropriate State and federal reimbursements. FEMA and the Governor's Office of Emergency Services (OES) will share in the reimbursement coverage of eligible costs as follows:

AGENCY	SHARE
FEMA	75.00 percent
State - OES	18.75 percent
County	6.25 percent

DHS will continue to assess the functional need for replacement facilities to support OVMC. Additionally, DHS will work with the CEO County Disaster Administrative Team to pursue eligible reimbursement.

## **FUTURE FIRE MITIGATION**

As requested by your Board, the Fire Department has conducted an evaluation and has developed recommendations to limit the risk of future fires. It has been determined that any buildings that are reconstructed at OVMC should comply with sections of the 2007 Los Angeles County Fire Code as noted below and which apply to new construction in areas within Los Angeles County that fall within the Very High Fire Hazard Severity Zone. In addition, any new buildings that are constructed, or re-constructed, should be designed and spaced so that a minimal amount of Fire department resources would be needed to protect them.

Once hospital staff begins its work to plan for campus development, DHS will evaluate and monitor compliance with the noted recommendations to limit the risk of future fires. At that time, the hospital will evaluate: 1) available campus space; 2) building/structure needs; 3) most appropriate location for reconstruction; and 4) appropriate construction standards to minimize fire risk. The Fire Department will be included in these discussions as the hospital moves forward. Meanwhile, OVMC remains in the recovery phase from the fire.

CODE SECTION	DESCRIPTION
304	Combustible Waste Removal
317	Clearance of Brush and Vegetative Growth
4708	Materials and Construction Methods for Exterior Wildfire Exposure
4710	Materials, Systems and Methods of Construction
4715	Exterior Walls
4716	Decking, Floors, and Under-floor Protection
4717	Ancillary Buildings and Structures

## **EMERGENCY GENERATORS**

On November 20, 2008, OVMC met with DPW, ISD, and two consultants (a mechanical and an electrical engineer) that DPW has engaged to investigate the emergency generator malfunction. The group conducted a walk-through and initial visual review of the emergency generator, pumping mechanism, and fuel tanks. During the week of November 24, 2008, the consultants met with OVMC Facilities Division staff, as well as with a representative from the equipment manufacturer, to review the mechanical drawings, preventive maintenance records, and other documentation to develop a plan for testing the equipment. A series of tests to validate and simulate the scenario for the emergency generator fuel supply failure were completed on December 2, 2008. The final report is targeted for completion by the week of December 22, 2008 and DPW will report the findings to your Board.

Additionally, in order to ensure that the generators are fully operational in the event of an emergency, immediately following the fire, the hospital brought in the manufacturer of the generator equipment to conduct initial testing of the emergency generator and related components. The hospital has also put into place emergency procedures to monitor the operation of the small storage tank and the pumping mechanism, and to replenish the tank with fuel if necessary, in the event use of the emergency generator is required prior to completion of the assessment and implementation of the corrective action plan. This Office and other affected County departments will continue to work with hospital staff to assist in the recovery efforts for the OVMC campus.

If you have any questions, please call Carol Meyer of DHS at (213) 240-8370.

WTF:SRH:SAS  
MLM:DH:bjs

### **Attachment**

c: Executive Officer, Board of Supervisors  
County Counsel  
Fire Chief  
Interim Director, Department of Health Services  
Director, Internal Services Department  
Director, Department of Public Works

**Olive View-UCLA Medical Center  
Fire Damaged Sylmar Building List**

**Attachment I**

<b>YEAR BUILT</b>	<b>COUNTY BLDG. NUMBER</b>	<b>CURRENT UTILIZATION</b>	<b>DESCRIPTION BUILDING NAME</b>	<b>SQ. FT.</b>	<b>STATUS</b>
1926	2139	FACILITIES STORAGE	WAREHOUSE	7450	DAMAGED
1927	2195	DAY CARE CENTER	BLDG. 120	5,230	DESTROYED
1930	2208	INFORMATION SYSTEMS	BUNGALOW R	1,470	DAMAGED
1925	2189	HAZARDOUS WASTE	GARBAGE & CAN HOUSE	440	DESTROYED
1953	3205	LINENS STORAGE	CANTEEN/POST OFFICE BLDG.	2,400	DESTROYED
1961	4224	MAINTENANCE OF PLANT FACILITIES	PAINT SHOP BLDG.	7,900	DAMAGED
1931	2175	MEDICAL RECORD STORAGE	MORGUE BLDG.	2,290	DESTROYED
1930	2266	VOLUNTEER STORAGE	GUEST COTTAGE	415	DESTROYED
1993	X256	MEDICAL RECORDS	MEDICAL RECORD BLDG.	2,880	DESTROYED
1952	3561	MED. REC. STORAGE	INCINERATOR BLDG.	1,105	DESTROYED
1962	4850	HAZARDOUS WASTE STORAGE	CAN STERILIZER BLDG.	640	DESTROYED
1994	F-1	MEDICAL TRANSCRIBER	F-1 TRAILER	1,560	DESTROYED
1994	F-2 (0179)	FINANCIAL SYSTEM MANAGER	F-2 TRAILER	2,080	DESTROYED
1994	F-4	EXPENDITURE MANAGEMENT	F-4 TRAILER	1,560	DESTROYED
1994	F-5 (0182)	EXPENDITURE MANAGEMENT	F-5 TRAILER	1,516	DESTROYED
1994	F-6 (0183)	PATIENT ACCOUNTS	F-6 TRAILER	3,120	DESTROYED
1994	F-7 (0184)	PATIENT ACCOUNTS	F-7 TRAILER	3,120	DESTROYED
1994	F-8 (0185)	PATIENT ACCOUNTS	F-8 TRAILER	3,120	DESTROYED
1994	F-9	PATIENT ACCOUNTS	F-9 TRAILER	1,560	DESTROYED
1994	J-3	ISD/TELECOMMUNICATIO N	J-3 TRAILER	1,560	DESTROYED
1994	M-1	DEPT. OF CORRONER	M-1 TRAILER	1,560	DESTROYED
1994	T-7	RESTROOMS	T-7	3,120	DESTROYED
1994	S-1	OV-STORAGE	S-1 TRAILER	5,720	DESTROYED
1994	S-2	OV-STORAGE	S-2 TRAILER	14,040	DESTROYED
1994	S-3	OV-STORAGE	S-3 TRAILER	6,240	DESTROYED
1994	S-4	OV-STORAGE	S-4 TRAILER	3,120	DESTROYED
1994	S-5	OV-STORAGE	S-5 TRAILER	2,080	DESTROYED
1925	2190	FACILITIES DEPT. STORAGE	BARBER SHOP	363	DESTROYED
1924	2184	HUMAN RESOURCES	ADMINISTRATION BUILDING	10,492	DAMAGED
1994	X200	HEALTH CENTER RECORDS	HEALTH CENTER RECORDS	2,840	DESTROYED

YEAR BUILT	COUNTY BLDG. NUMBER	CURRENT UTILIZATION	DESCRIPTION BUILDING NAME	SQ. FT.	STATUS
		PSYCH YARD	SHADE PAVILLION	520	DAMAGED
	M-2	CORONERS TRAILER	TRAILER	1,560	DESTROYED
		LUMBER YARD	YARD	4,000	DESTROYED
		OLD WAREHOUSE	WAREHOUSE	4,000	DAMAGED
	M-1	AGRICULTURAL COMMISSIONER	AGRICULTURE COMMISSIONER	1,560	DESTROYED
	AG 2	AGRICULTURAL COMMISSIONER		1,560	DESTROYED
	AG 3	AGRICULTURAL COMMISSIONER		1,560	DESTROYED
	T-9	AGRICULTURAL COMMISSIONER	TOILET	520	DESTROYED
	T-6	LOCKER ROOM	T-6	520	DESTROYED
		VACANT TRAILER		1,560	DESTROYED
		Q TRAILER		1,560	DAMAGED
		AMBULANCE		440	DESTROYED
		FITNESS		2,000	DAMAGED
1930	2287	BATH HOUSE	BATH HOUSE	480	DESTROYED
1930	2181	TOOL SHED	TOOL SHED	313	DESTROYED
1930	3016	RESTROOMS	RESTROOMS	259	DESTROYED
		KENNEL	KENNEL	3,500	DAMAGED
1930	2241	FILM VAULT	FILM VAULT	140	DESTROYED

- The Human Resources Building suffered significant damage to one wing and the building has been red-tagged. Human Resources staff has been relocated to either one of the other cottages on the campus, the Ferguson Complex, or the High Desert MACC. Arrangements are being made through the hospital's Safety Office for Human Resources staff to remove files and other papers and equipment from the building.
- One of the buildings that housed Information Systems was destroyed and resulted in the loss of several hundred thousand dollars worth of computer equipment. Staff has been relocated to another building on the campus. There has been no loss of data as a result of the equipment loss, the main computer server is located inside the hospital and was not damaged.
- Medical and financial records storage buildings across the campus were destroyed in the fire. The hospital is still assessing the total loss of these records. Notification has been provided to the California Department of Public Health's Licensing and Certification Division of the loss of the medical records. The hospital is ordering cargo containers to meet its immediate document storage needs.

- The shade pavilion building in the Psychiatric play-yard was severely damaged. The availability of an outdoor recreation area for inpatient psychiatric patients is required under State law and fencing was installed and repairs were made to make the area usable as of Monday, November 24, 2008. State Licensing and Certification was notified of the disruption.
- The Facilities Paint and Electrical Shops and Warehouse were all damaged and are presently unusable.
- Several buildings that housed the Agriculture Commissioner's San Fernando Valley Field Office were destroyed. HazMat has ordered the area quarantined due to the hazardous materials that were stored in the buildings. The Agriculture Commissioner has brought in temporary trailers that have been located near the original buildings.
- The building used by the Emergency Medical Services ambulance staff was destroyed. The hospital is working to identify temporary space for the ambulance personnel to use until a new building is erected. The ambulances are stationed in the Ferguson Complex and dispatched to Olive View-UCLA Medical Center as needed until space is located.
- The building housing the Coroner's field office was destroyed. The Coroner has indicated it may bring in a temporary trailer and the hospital will assist in the location and placement of the trailer if this is what they decide to do.
- The County Police locker building was destroyed and the hospital has been in contact with the Office of Public Safety about their plans to replace this building.
- The hospital's Fitness Center was severely damaged and has been red-tagged. The replacement of this building will be considered during the site planning activities.
- Buildings housing hazardous materials storage and x-rays were destroyed during the fire and HazMat has ordered the areas surrounding these buildings quarantined.
- The DWP power station that serves the campus, as well as to the underground cabling connecting the campus to DWP, was severely damaged in the fire. As a result, DWP is not able to supply electricity to the non-hospital buildings on the campus. Portable generators have been brought in to provide electricity to these buildings. The hospital met with DWP on November 25, 2008, to discuss the repairs necessary to restore power to the entire campus.





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Interim Director

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February 3, 2009

TO: Each Supervisor

FROM: John F. Schunhoff, Ph.D.   
Interim Director

SUBJECT: **EMERGENCY GENERATOR FAILURE INVESTIGATION  
REPORT OLIVE VIEW-UCLA MEDICAL CENTER**

On November 18, 2008, on motion by Supervisor Antonovich, your Board directed the Chief Executive Officer, the Director of Internal Services (ISD), the Interim Director of Health Services (DHS), and Fire Chief to consult with the Department of Public Works (DPW) to hire an appropriate consultant to participate in the root cause analysis of the emergency generators and the fuel pump system failure at Olive View-UCLA Medical Center and report back to the Board.

Beginning on November 20, 2008, DPW and electrical/mechanical consulting engineers (Power Engineering Services and Facility Dynamics Engineering) conducted field investigations by interviewing the central plant personnel, reviewing logs/reports, and testing the emergency generators, fuel pump system, and fuel tanks. The engineers completed their report on December 16, 2008. See attachment for the consultant's executive report.

It was found that the emergency generators shut down because fuel was not replenished into the fuel tanks that supply the generators. The control circuit for the fuel pumps is connected to the cogeneration plant, and when the cogeneration plant is shut down, the power must be switched manually to the emergency generators in order to resume pumping fuel into the system. During the fire, the fuel pumps and control circuit operated as installed. However, neither ISD or the hospital had plant operating procedures that addressed a scenario where both Department of Water and Power (DWP) and cogeneration power would be interrupted simultaneously, and, therefore, the need to manually switch the fuel pump to the emergency generator power was not known to plant operators.

The engineers recommended the following six steps be taken to assure that this type of failure does not occur in the future.

1. DHS and ISD to provide a written interim operating procedure to assure proper operation of the emergency fuel supply to the generators based on the result of the findings. **Status – Complete.**

2. DPW to prepare a design and implement an automated connection of the fuel pumps to an emergency power source that will function whenever there is future interruption to the DWP power source. **Status – Underway. Scheduled to be completed by December 2009.**
3. DHS to implement a means to manually transfer fuel from the storage tanks into the fuel tanks in the event the electric fuel transfer system fails. **Status – Underway. Scheduled to be completed by March 2009.**
4. DHS to inspect and clean all interiors of the electrical switchgear and control panels in the plant of smoke/ashes that entered the system and replace all air filters. **Status – Underway. Scheduled to be completed by April 2009.**
5. DPW to conduct a comprehensive evaluation of the cogeneration plant and emergency generator system operations and procedures manual. **Status – Underway. Scheduled to be completed by June 2009.**
6. DPW to evaluate all electrical loads and identify those that are life-safety, critical, or required by code and assure they are properly connected to the automatic transfer switches and emergency generators. **Status – Underway. Scheduled to be completed by September 2009.**

The total cost of implementing these recommendations is approximately \$185,000 which will be funded from the DHS operating budget. Not included in the estimated budget is the cost to implement possible recommendations resulting from the evaluation as outlined in #6 above.

In addition to these recommendations, the engineers also provided a number of additional recommendations to further increase the reliability of the power supply to the hospital. DHS, ISD, and CEO will evaluate these recommendations and submit them as part of the budget process.

If you have any questions regarding this matter, please let me know.

JFS:jds

R/Projects/OVMC/OVMCFire/BD Memo 090127

Attachment

c: Chief Executive Officer  
Executive Officer, Board of Supervisors  
County Counsel  
Director of Public Works  
Director of Internal Services

## **EXECUTIVE REPORT**

**DATE:** December 16, 2008  
**SUBJECT:** Olive View-UCLA Medical Center, Sylmar, California  
Sylmar Fire 480V Emergency Generator Shutdown Investigation  
**PREPARED BY:** Doug Effenberger, P.E.  
Power Engineering Services, Inc.



Tony Pierce, P.E.  
Facility Dynamics Engineering



### **Incident**

On the night of November 14 and early morning hours of November 15, 2008, the Olive View-UCLA Medical Center was subjected to a natural disaster when a fire storm, driven by fierce Santa Ana winds, swept through the facility destroying structures and causing a utility (DWP) power outage at forty-five minutes after midnight. The utility power outage caused the hospital to rely on both the facility cogeneration gas turbine generators and 480V emergency generators to supply all power.

At the time of the outage the staff present were monitoring the equipment. All personnel were wearing breathing apparatus due to the fire smoke that had entered the plant. Visibility was poor. At approximately 1:09 am, the main gas turbine power generators were shut down by a combustible gas sensor safety device, as designed. The sensitive safety device operated as a result of the thick smoke and airborne ash in the air that spread throughout the plant.

At approximately 1:45 am, the 480Volt (V) emergency diesel generators that were supplying power to life safety and critical loads shut down resulting in a complete power outage throughout the hospital. The 480V emergency generators were restarted at 4:10 am. The cogeneration gas turbines were restarted at 5:00 am and DWP power was restored at 5:15 am.

### **Findings**

A site investigation has been conducted to determine the cause of the 480V emergency generator shutdown. This review included meetings with both the ISD cogeneration Plant operators and the hospital staff who maintain the emergency generator system, as well as inspecting and conducting circuit tracing of the equipment and performing a series of tests and measurements.

The generators were originally installed as part of the complete new central plant for the new hospital in 1984. After inspection, circuit tracing and by conducting a series of tests and measurements, it has been determined that the fuel oil pumps lost the control signal and shut down during the fire, which then caused the generators to shut down due to a lack of fuel. It has been confirmed that the power to the fuel pumps is supplied by the emergency generators, and the control circuit for the pumps is supplied from a panel that is connected to the cogeneration plant electrical system. The power for the control circuit was lost when the gas turbine generators shut down due to the gas detector and alarm, which caused the fuel pumps to stop operating. After approximately 30 minutes, the emergency generator day tanks, which are filled by the fuel pumps, ran dry and the generators shut down due to lack of fuel.

The fuel pumps and the control circuit operated as installed, however, the existing emergency generator and cogeneration plant operating procedures did not cover this particular set of circumstances that would have prevented the incident. Now that the condition is known, corrective interim measures have been taken to prevent a reoccurrence.

### **Interim Measures**

Both ISD and hospital staff have been briefed by the investigative team on the cause of the emergency generator fuel system failure. As a result, the hospital and ISD Staff have written an interim operating procedure for securing the 120V control power source and monitoring the fuel supply system and emergency generator operation whenever the 480V generators are running. In order to prevent a reoccurrence of the 480V emergency fuel system failure experienced on November 15, 2008 it is essential that the fuel pump 120V control power circuit be connected to a circuit supplied by the 480V emergency generator. It is also essential to provide a means for manual transfer of fuel into the emergency generator day tanks in the event the fuel pumps cease operation for any reason.

### **Recommendations**

The following recommended actions have been identified in response to the incident. These recommendations are provided in three distinct groups. The Essential Measures are those deemed critical to prevent a similar potential outage in the future. Several of these measures have already been enacted by the hospital staff and are in place today. The Recommended measures have been provided to identify areas where failure did not occur during this event, but were discovered during the investigation as timely issues that will benefit the hospital. The Consideration measures will enhance performance of the plant's overall electrical system.

#### **Essential Measures**

- DHS and ISD have written an interim operating procedure to assure proper operation of the 480V emergency generator fuel supply while the generators are running.
- DHS has implemented a means for manually transferring fuel into the generator day tanks in the event the electric fuel transfer system fails.
- Prepare a design for review and implementation to connect the fuel pump 120V control circuit to an emergency source. Connect the 120V control circuit once the design is approved.
- Inspect and clean the interiors of the electrical switchgear and control panels in the plant and replace all air filters.
- Conduct a comprehensive evaluation of the cogeneration plant and 480V Emergency Generator Operations and Procedures Manual
- Evaluate all electric loads and identify those that are life safety, critical or required by Code and assure they are connected to the automatic transfer switches and 480V emergency generators.

#### **Recommended**

- The fuel oil system should be inspected and reviewed to determine improvements that will enhance reliability. Improvements could include the installation of a monitoring, control and alarm system, level and flow sensors, fail safe valves, duplex pump configuration, remote status indication and alarms.
- Evaluate the automation of the existing manual fuel source selection valves for the main underground storage tanks used to supply the plant fuel oil system.
- Establish a single manager for fuel system maintenance and operation.

## EXECUTIVE REPORT

Sylmar Fire-480V Emergency Generator

Shutdown Investigation

December 16, 2008

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- Install a fuel return line and fuel oil cooler to return unburned fuel to the generator day tanks will extend the generator run time in the event of a fuel supply failure.
  - Meet with LADWP representatives to discuss options available to improve the reliability and power quality of the DWP service to the hospital.
- 

### Consideration

- Perform a comprehensive audit of the 24 year old cogeneration plant and 480V emergency generator system. The audit should include inspection, update of all facility drawings and documentation, review of design, system studies, assessment of the existing condition and assessment for continued use of the equipment. Identify wiring, components and equipment for removal that are no longer in service or necessary for operation. Prepare a report with recommendations that are based on the audit. The recommendations should address system design, reliability, capacity, control, instrumentation, operation, maintenance, and related issues. Provide a cost estimate for the measures recommended in the report.